

backwards over the jaws from the gape; horns, hoofs, and muzzle, black; iris, dark hazel; eye, mean.

Female as large as male, and like him in all essential respects. The young, paler, and mixed with gray.

Inhabit the precipitous and wooded mountains of the central region of Nipal, which they rush up and down with fearful rapidity, though they do not spring or leap well, nor are speedy.

The *Thár* species are denominated *Sarau*, in the western parts of these mountains, where it is as common as in Nipal. The *Cambing Ootan* is its analogue in the Indian *Islands*; but the species is not found, I believe, in any other mountainous range of the continent of India.

III.—*On the Wild Goat and Wild Sheep of the Himálaya, with Remarks on the genera Capra and Ovis. By B. H. HODGSON, Esq. Resident in Nipal.*

In the way of classification, there are few objects, I believe, more important than the establishment of some distinctive marks to separate *Antilope*, *Capra* and *Ovis*. The best naturalists of the present day appear to think that M. GEOFFROY'S diagnosis of the former genus, viz. cores of the horns solid, may be relied on. But small as is the number of Antelopes accessible to me, I have proved with the saw, that in respect to at least four species, (viz. *Chírú*, *Thár*, *Goral*, and *Duvaucellii*,) the fact is not so, all these four having sinuses in the cores of their horns, connected with the frontal sinuses: and, if it be objected, that of three of these the character is confessedly osculant towards *Capra*, that cannot be urged against the fourth, which is a *Gazella* of H. SMITH'S group.

It is certain, therefore, that solid horns constitute not an *invariable* character of the genus *Antilope*; and it is highly probable, that this character is *not of such general prevalence* as to warrant the distinction founded upon it.

The truth seems to be this, that in *Antilope*, the bony nuts of the horns are of a compact structure, possessing at their bases sinuses of only limited extent, and nearly free from cellular partitions; whereas in *Capra*, and yet more in *Ovis*, the cores are porous and uncompact, and furnished at their bases with large sinuses, crowded with cells*.

On the present occasion, I do not propose to make any further mention of the genus *Antilope*, but to confine myself to some remarks

* The form of the scull a long vertical line, forms a much better diagnosis than the cores of horns.

tending to illustrate the distinctions between *Capra* and *Ovis*, and more particularly, to test the accuracy of those indications which are generally admitted by authors, by applying them to the wild species of either genus which belongs to the *Himálaya*.

For the last two years, I have had alive in my garden, a splendid specimen of the mature male of each, and I have frequently compared them together in all respects of manners and of structure. As the goat in question, as well as the sheep is new*, I will begin with a synoptical description of the two, and then proceed to notice the points of difference and agreement existing between them.

Tribe CAPRIDÆ—H. SMITH.

Genus—*Capra*, Ditto.

Species—C. JHÁRAL. New, the JHARAL of the Nipalese.

Affined to the Alpine *Œgagri*, and to *Jemlaica*. Adult male, 50 to 56 inches long from snout to rump, and 36 to 40 high. Head finely formed, and full of beauty and expression. Clad in close short hair, and without the least vestige of a beard; facial line, straight; ears small, narrow, erect, rounded at tips, and striated; eye, lively; between the nares, a black moist skin, nares themselves short and wide; knees and sternum, callous; tail, short, depressed, wholly nude below. Animal of compact, powerful make, with a sparish, short, and bowed neck, deep barrel and chest, and longish, very strong and rigid limbs, supported on perpendicular pasterns and high compact hoofs; false hoofs conic and considerably developed; attitude of rest gathered and firm, with the head moderately raised, and the back sub-arched. Shoulders decidedly higher than the croup; fore quarters superb, and wholly invested in a long, flowing, straight, lion-like mane, somewhat feathered vertically from the crown of the withers, and sweeping down below the knees; hind-quarters poor and porcine, much sloped off from the croup to the tail, and the skin much constricted between the hams behind; fur of two sorts—the outer hair of moderate harshness, nor wiry nor brittle, straight, and applied to the skin, but erigible under excitement, and of unequal lengths and colours; the inner, soft and woolly, as abundant as in the wild sheep, and finer, of one length and colour. Horns 9 to 12 inches long, inserted obliquely on the crest of the frontals, and touching at base with their anterior edges, sub-compressed, sub-triangular, and uniformly wrinkled across, except near the tips, where they are rounded and smooth; keeled and sharpened to the front, obtusely rounded behind: the

* My own imperfect account of both, in the Society's Transactions, is the only one extant.

edge of the keel not nodose, and usually but faintly marked by the continuation over it of the transverse wrinkles of the horns.

The horns are divergent, and directed more upwards than backwards: their points are slightly inclined inwards. The colour of the animal is a saturate brown superficially, but internally, hoary blue; and the mane, for the most part, *wholly* of that hue; fore arms, lower part of hams, and backs of the legs, rusty; entire fronts of the limbs, and whole face and cheeks, black-brown; the dark colour on the two last parts divided by a longitudinal line of pale rufous, and another before the eye, shorter; lips and chin hoary, with a blackish patch on either side below the gape; tip of tail and of ears, blackish; tongue and palate, and nude skin of tips and muzzle, black; iris, darkish red hazel. Odour very powerful in the mature male, especially at certain times. Is found in the wild state in the Kachár region of Nipal, in small flocks or solitarily; is bold, capricious, wanton, eminently scansorial, pugnacious, and easily tamed, and acclimatised in foreign parts.

REMARKS. *Jhárál* is closely affined by the character of the horns to the Alpine *Ægagri*, and still more nearly, in other respects, to *Jemlaïca*. It differs from the former by the less volume of the horns, by their smoother anterior edge, and by the absence of the beard;—from the latter, by horns much less compressed and nodose. *Jharal* breeds with the domestic Goat, and perhaps more nearly resembles the ordinary model of the tame races than any wild species yet discovered. The western type of the Himálayan wild goat (called *Tehr*, at Simla and Musúri) has the anterior edge of the horns decidedly nodose, though less so than in *C. Jemlaïca*.

The Wild Sheep. Genus—Ovis.

Species—*O. Náhoor*, mihi.

The *Náhoor* of the Nipalese. New? variety of *O. Musmon*? Closely affined to *Musmon*, of which it is possibly only a variety. Adult male, 48 to 54 inches from snout to rump, and 32 to 36 high. Head coarse and expressionless, clad entirely in close short hair, without beard on the chin or throat, or any semblance of mane. Chaffron considerably arched. Ears medial, narrow, erect, pointed, striated. Eye dull, moist space between the nares, evanescent; nares narrow and long. Knees and sternum callous; tail medial, cylindrico-depressed, only $\frac{1}{2}$ nude below. Structure moderately compact, not remarkable for power. Neck sparsish, bowed, with a considerable dip from the crown of the shoulders. Limbs longish, firm, but slender, not remarkable for rigidity, and supported on laxer pasterns, and on hoofs lower and less compact than

the goats ; false hoofs mere callosities. Attitude of rest less gathered and firm, with the head lower and the back straight. Shoulders decidedly lower than croup ; fore-quarters not more massive than the hind, nor their extremities stronger. Hair of two sorts—the outer hair, of a harsh, brittle, quill-like character, serpentine internally with the salient bows of one hair fitting into the resilient bends of another, but externally, straight and porrect from the skin, very abundant, and of medial uniform length all over the body : the inner coat, soft and woolly, rather spare, and not more abundant than in the Goat. Horns, 22 inches along the curve, inserted high above the orbits, on the crown of the forehead, touching nearly at base with their whole depth, and carrying the frontal bones very high up between them ; the parietals being depressed in an equal degree. The horns diverge greatly, but can scarcely be said to be *spirally* turned. They are first directed upwards, considerably before the facial line, and then sweep downwards with a bold curve : the points again being re-curved upwards and inwards. They are uncompressed, triangular, broadly convexed to the front, and cultrated to the back. Their anterior face is the widest, and is presented almost directly forwards ; their lateral faces, which are rectilinear, have an oblique aspect, and unite in an acutish angle at the back. They are transversely wrinkled, except near the tips, which are round and smooth. Colour pale.

The colour of the animal is a pale slaty blue, obscured with earthy brown, in summer overlaid with a rufous tint. Head below, and insides of the limbs and hams, yellowish white. Edge of the buttocks behind and of the tail, pure white ; face and fronts of the entire limbs and chest, blackish ; bands on the flanks, the same, and also tip of the tail. Tongue and palate dark. Nude skin of lips and nose black. Eye yellow-hazel. No odour. Is found in the wild state in the *Kachár* region of Nipal, north of the *Jháral*, amid the glaciers of the *Himálaya*, and both on the Indian and Tibetan sides of the snowy crest of that range. Is sufficiently bold and scendent, but far less pugnacious, capricious, and curious, than the *Jháral*. Much less easily acclimatised in foreign parts than he is ; in confinement more resigned and apathetic, and has none of the *Jháral's* propensity to bark trees with his horns, and to feed upon that bark and upon young shoots and aromatic herbs. I have tried in vain to make the *Náhoor* breed with tame sheep, because he will not copulate with them. The female of the species has the chaffron straight, and short, erect, sub-recurved, and greatly depressed horns. The young want, at first, the marks on the limbs and flanks, and their nose is straight.

REMARKS. Differs from *Musmon*, to which it is closely allied, by the decided double flexure of the horns; their presence in the females, and the want of a tuft beneath the throat. With reference to the imperfect account of the *Náhoor*, published in the Transactions, I should not omit to say, in conclusion, that the *Náhoor* and *Banbhèra* are separate species, the former being the Himálayan type of *Musmon* perhaps: and the latter, certainly, that of *Ammon*.

Having now completed the descriptions of the wild goat and wild sheep, I shall proceed to the exhibition of the points of difference and of resemblance existing between the two, beginning with the former.

GOAT.	SHEEP.
Whole structure stronger and more compact.	Less so.
Limbs thicker and more rigid.	Feebler and more slender.
Hoofs higher and more compact.	Lower, and less so.
False hoofs well developed.	Evanescent.
Head smaller and finer.	Larger and heavier.
Facial line straight.	Chaffron arched.
Ears shorter and rounded.	Longer and pointed.
Tail short, flat, nude below.	Larger, less depressed and $\frac{1}{2}$ nude only.
Withers higher than croup.	Croup higher.
Fore legs stronger than hind.	Fore and hind equal.
Croup sloped off.	Not so.
Odorous.	Not so.
Nose moister, and nares short and wide.	Less moist, and nares larger and narrower.
Horns of medial size, keeled and turned upwards.	Horns very large, not keeled and turned to the sides.
Eye darker and keener.	Paler and duller.
Hair long and unequal.	Short and equal.
Back arched.	Back straight.
Bears change of climate well.	Bears it ill.
Is eminently curious, capricious, and confident.	Is incurious, staid, and timid.
Barks trees with its horns, feeding on the peel and on aromatic herbs.	Does not bark trees, and is less addicted to aromatics.
In fighting, rears itself on its hind legs, and lets the weight of its body fall on the adversary.	In fighting, runs a tilt, adding hither the force of impulse to that of weight.

The goat and sheep have in common hair and wool; no beard; no suborbital sinuses; evanescent muzzle; no inguinal pores. Horns in contact at top of head; knees and sternum callous; angular and transversely wrinkled horns; striated ears; two teats only in the females: horns in both sexes, and incisors of precisely the same forms.

Of the various diagnostics, then, proposed by HAMILTON SMITH, it would seem, that the following only can be perfectly relied on to separate *Ovis* from *Capra*. Slender limbs; longer pointed ears; chaffron

arched; nares long and oblique; very voluminous horns turned laterally with double flexures. I should add myself, the strong and invariable distinction;—males not odorous, as opposed to the males odorous of the genus *Capra*. But, after all, there are no physical distinctions at all equivalent to the moral ones, so finely and truly delineated by BUFFON, and which, notwithstanding what H. SMITH urges in favour of the courage and activity of sheep, will for ever continue to be recognised as the only essential diagnostics of the two genera.

III.—*On the Fossil Bones of the Jamna River.* By EDMUND DEAN, *Serjeant, Sappers and Miners.*

[Extract from a letter, dated 2nd April, 1834, accompanying the first despatch of specimens, read at the Meeting of the 3rd July, 1834.]

I have taken the liberty of sending for your inspection some specimens from a collection of Jamna fossils, made by me during a period of nearly two years, that I was employed under Captain E. SMITH, in removing the impediments to navigation in that river.

I consider myself fortunate in having been able to procure several portions of human bones, in so perfect a state, as to enable an eminent medical gentleman to class the major part of them.

With regard to the specimens before you, No. 8, (an elephant's tooth,) resembles the 2nd and 3rd plates represented in plate x. fig. 10 of PARKINSON's *Outlines of Oryctology*; and No. 9, the 1st and 2nd plates of the same tooth, excepting that the number of the elliptic figures on the crown caused by trituration, is greater in my specimens; and that great difference in the thickness of the plates of this and the common Asiatic elephant, (a specimen of which I observe is in your possession,) which he appears to consider a distinguishing characteristic of the different species, is not so apparent in my specimens as it appears to have been in those of PARKINSON. This difference, however, must be confined to the Asiatic specimens, as the length of his fossil tooth was eight inches, and it was composed of 13 plates, which would make two of them average 1.23 in. : this, allowing for the very apparent diminution in thickness of the plates towards the rear, would make my larger specimen, which averages one inch, correspond nearly enough with the plates 2nd and 3rd of fig. 10.

Nos. 10 and 11, (figs. 1 and 2, of Pl. xxxiii.) I have been led to suppose may have belonged to the species of tapir, the crowns of whose teeth are described as being divided into five transverse risings, and if by the enamel standing distinctly above the bony parts, the